

10

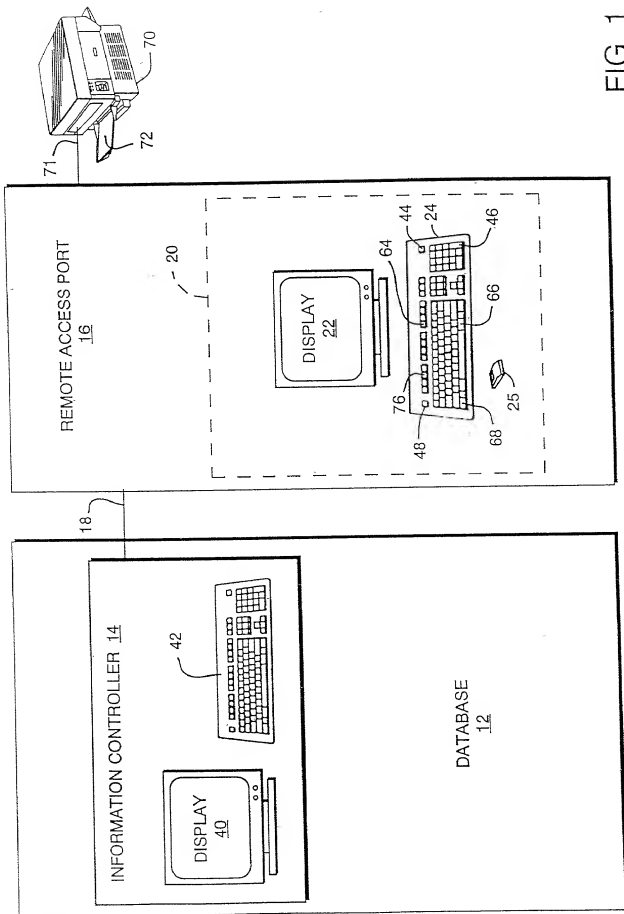


FIG. 1

102220-62891260

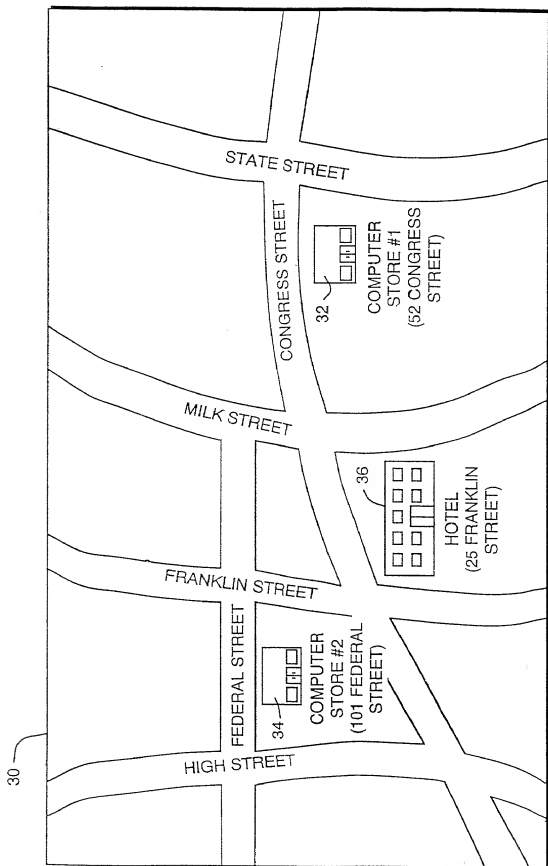


FIG. 2

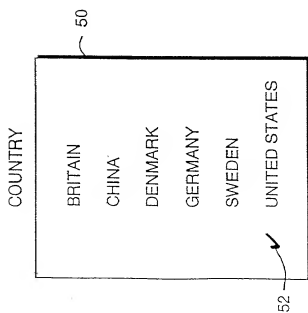


FIG. 3

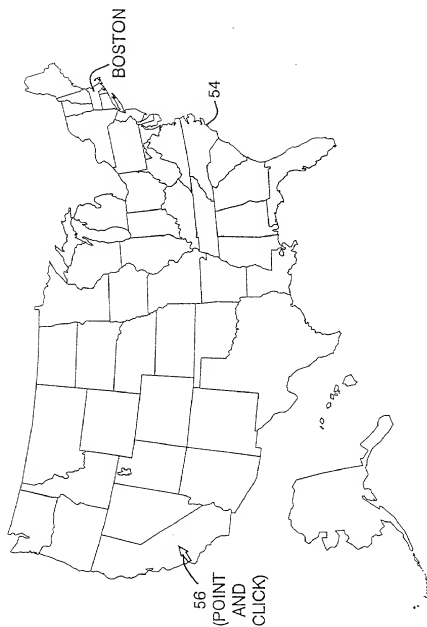


FIG. 3A

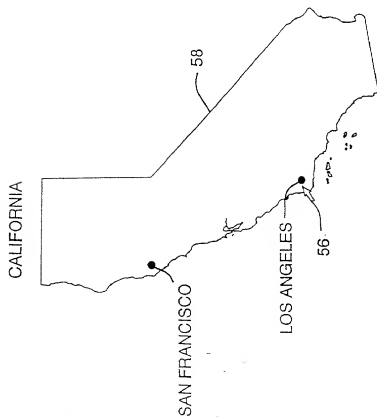


FIG. 3B

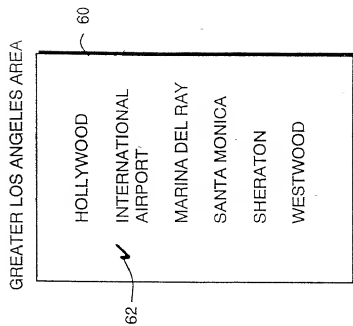


FIG. 3C

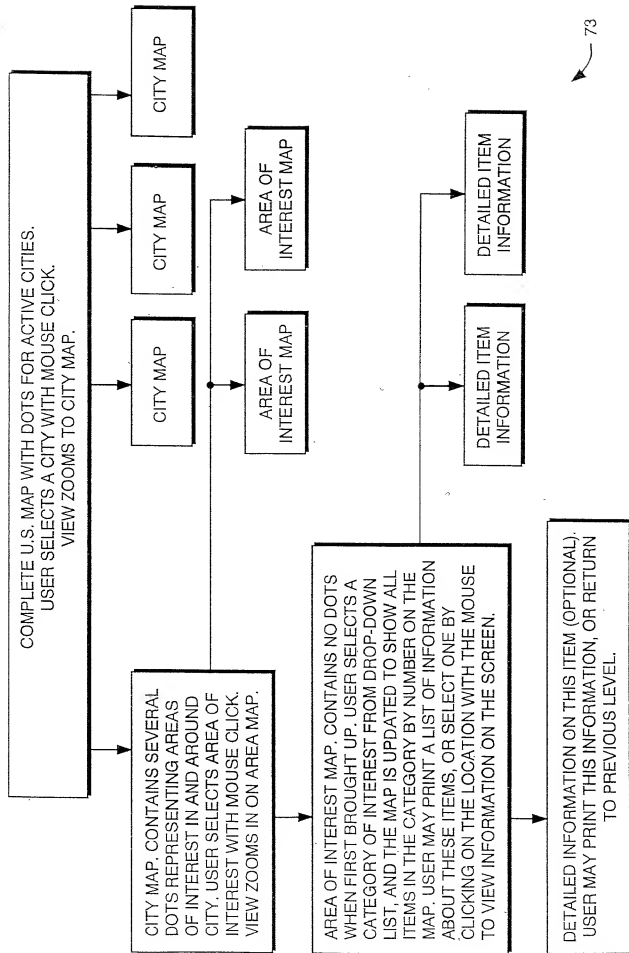


FIG. 4

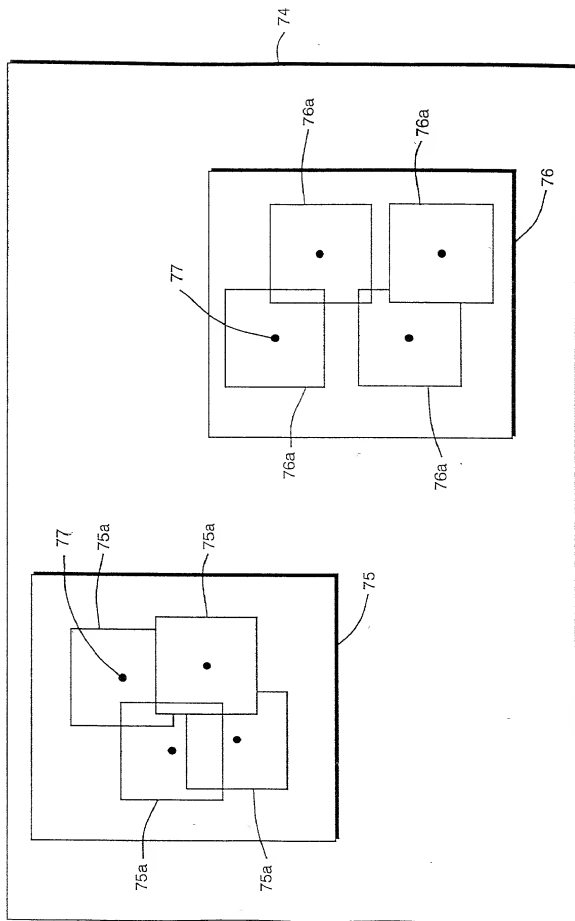


FIG. 4A

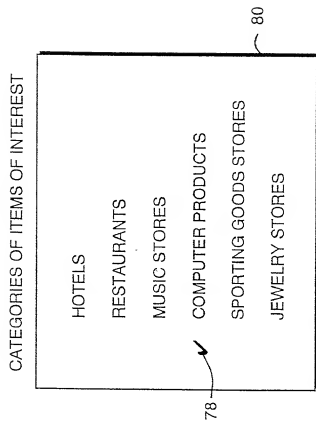


FIG. 5

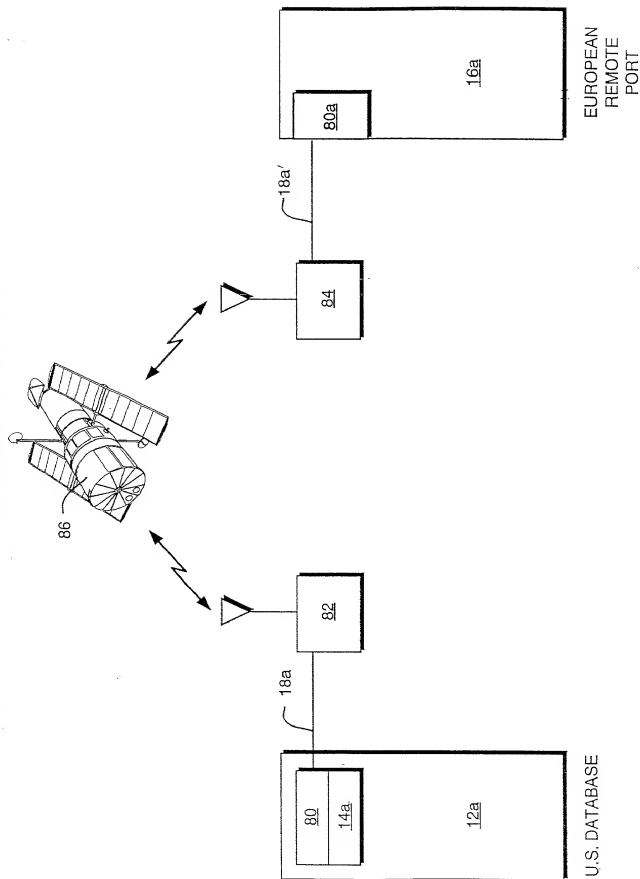


FIG. 6A



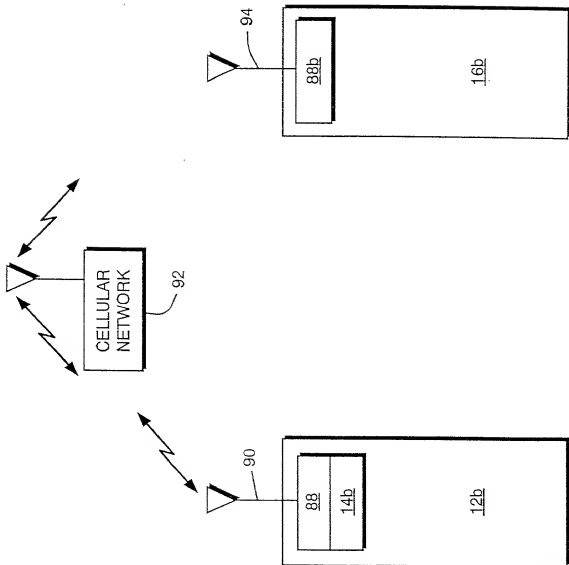


FIG. 6B

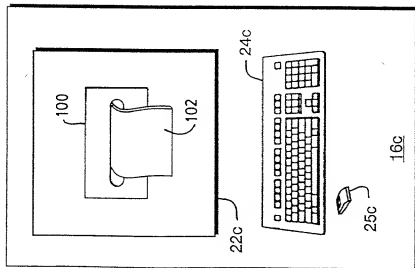


FIG. 7A

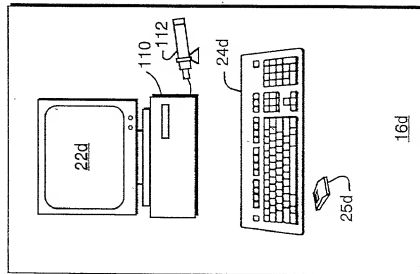
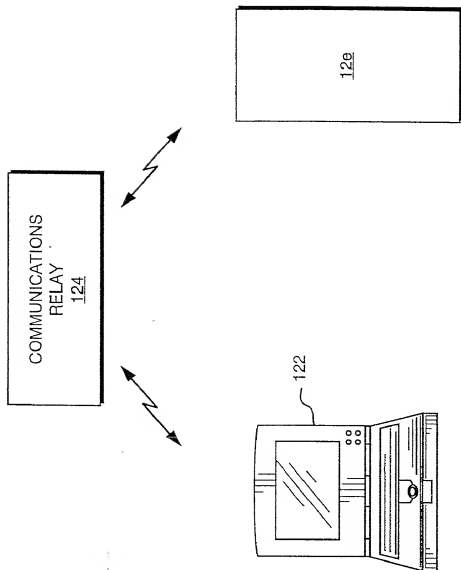


FIG. 7B



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FIG. 8

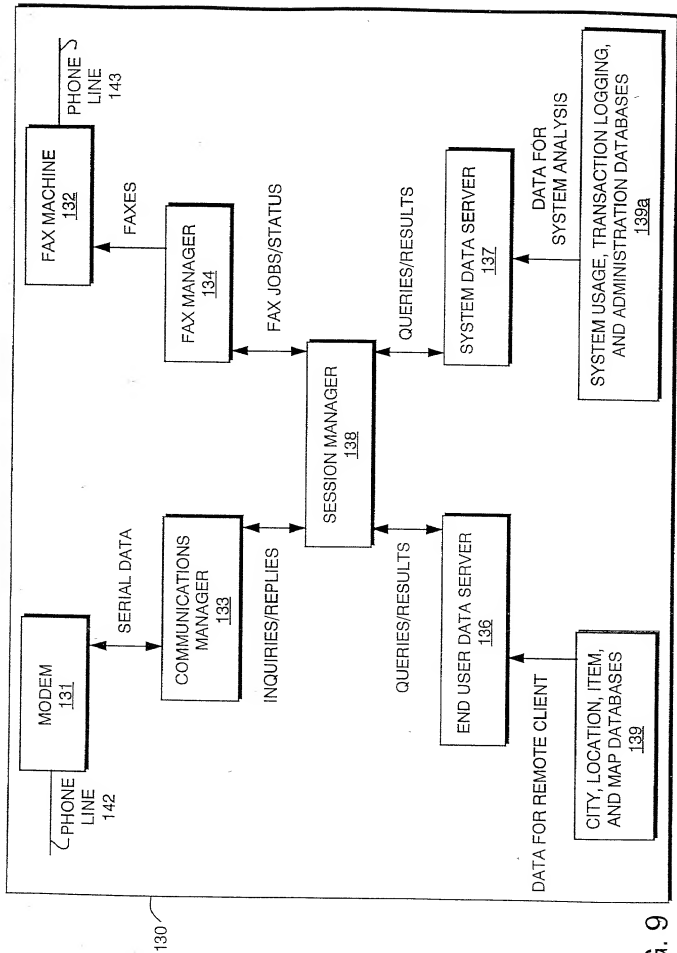


FIG. 9

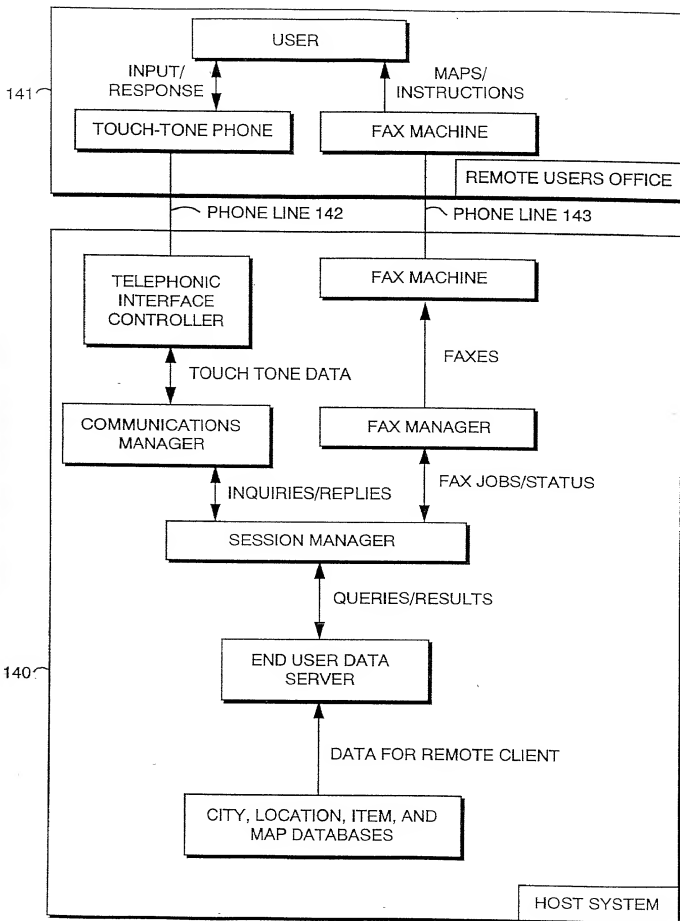


FIG. 10

The diagram illustrates the architecture of a map display system, showing the flow of data and control between various components:

- DISPLAY MANAGER (150):** CONTROLS ALL DRAWING OF MAPS ON SCREEN. CONTROLS STATUS MESSAGES TO USER. It receives **MAP DATA** from the MAP MANAGER and sends **MAP DATA REQUESTS** to it. It also sends **SCREEN UPDATES** to the **DISPLAY** component.
- DISPLAY (150):** Receives **SCREEN UPDATES** from the DISPLAY MANAGER.
- MAP MANAGER (151):** MANAGES MAP DATA FOR CURRENT SESSION. PROVIDES DATA FOR DRAWING MAPS TO DISPLAY MANAGER. It receives **MAP DATA REQUESTS** from the DISPLAY MANAGER and sends **MAP DATA** to it. It also receives **DATA REQUESTS** from the DATA MANAGER and sends **DATA** to it.
- DATA MANAGER (152):** HANDLES ALL DATA REQUESTS FROM KERNEL OR MAP MANAGER. INTERFACES TO EXTERNAL DATA SOURCES. PASSES ON REMOTE DATA REQUESTS TO COMMUNICATIONS MANAGER. It receives **DATA REQUESTS** from the MAP MANAGER and sends **DATA** to it. It also receives **DATA REQUESTS** from the SYSTEM KERNEL and sends **DATA** to it. It sends **DATA REQUESTS** to the COMMUNICATIONS MANAGER.
- MAP DATABASE (156) and OTHER DATABASES (155):** These are external data sources that the DATA MANAGER interfaces with. The DATA MANAGER sends **DATA REQUESTS** to these databases and receives **DATA** in response.
- SYSTEM KERNEL (159):** TRAPS ALL USER INPUTS AND DETERMINES REQUIRED ACTIONS. It receives **USER INPUTS: (KEYBOARD, MOUSE) (160)** and sends **DATA REQUESTS** to the DATA MANAGER. It also sends **DATA** to the DATA MANAGER. It receives **DATA** from the DATA MANAGER and sends **DATA REQUESTS** to the COMMUNICATIONS MANAGER. It also sends **STATUS MESSAGES (153)** to the PRINT MANAGER.
- PRINT MANAGER (154):** HANDLES ALL PRINTING IN SYSTEM. REQUESTS MAP AND OTHER DATA FROM DATA MANAGER TO CREATE PRINT JOBS. It receives **STATUS MESSAGES (153)** from the SYSTEM KERNEL and sends **PRINT REQUESTS** to the COMMUNICATIONS MANAGER. It also sends **PRINT REQUESTS** to the **PRINTER (154)** and receives **PRINT JOBS** in response.
- PRINTER (154):** Receives **PRINT REQUESTS** from the PRINT MANAGER and sends **PRINT JOBS** to it.
- COMMUNICATIONS MANAGER (157):** HANDLES ALL REMOTE COMMUNICATIONS REQUIREMENTS, INCLUDING REMOTE DATA REQUESTS. It receives **REMOTE REQUESTS (158)** and sends **REMOTE REQUESTS** to the DATA MANAGER. It also sends **RESPONSE** to the DATA MANAGER. It receives **RESPONSE** from the PRINT MANAGER and sends **RESPONSE** to the SYSTEM KERNEL. It also sends **REMOTE REQUESTS** to the DATA MANAGER.
- REMOTE DATA SOURCE (158):** Provides **REMOTE REQUESTS (158)** to the COMMUNICATIONS MANAGER.
- USER INPUTS: (KEYBOARD, MOUSE) (160):** Provides input to the SYSTEM KERNEL.
- DISPLAY MESSAGES:** A feedback loop from the DISPLAY MANAGER back to the SYSTEM KERNEL.

FIG. 11

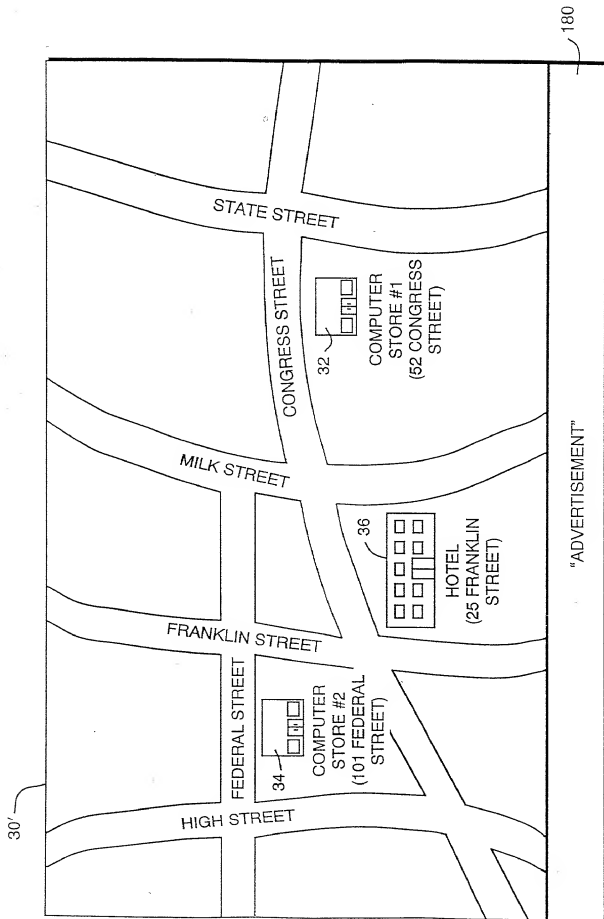


FIG. 12